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LETTERS TO THE EDITOR.

** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

Bibliographic Work in Vegetable Physiology.

I AM on the point of making a suggestion to students of botany, chemistry, and more specially of physiology. I would be glad to receive notes concerning the literature of any question in physiology, in order to use them in my bibliographical work concerning the physiology of plants. Under the head-title of "Contributions from the Missouri Botanical Garden" a series of bibliographical papers will be published, treating of every question within the range of vegetable physiology.

Students of any college in the country could assist me a great deal, if they would inform me of their being willing to pick up occasional notes on this or that question. The bibliographies of *Inuline*, and of the *Tannoids*, both with special reference to the rôle played by these constituents in vegetable physiology, have already been issued. The question taken up at present is that of the *alcoholic fermentation*. Anybody wishing to assist the writer in preparing his bibliography on this subject by sending lists of references — all of which will be welcome — or by looking through a journal or other periodical, thus saving a little time for the writer, without much loss of time for himself, will receive hearty thanks, and will be mentioned as a contributor.

This note being submitted to the attention of all students of science as well as professional scientific men, I wish that students of colleges and universities would act upon it. Often students are at a loss as to how to do scientific work and contribute to general knowledge. Here is one of the departments where much work is needed. References might be taken in the following way:

1. Select some chemical, botanical, or physiological journal.

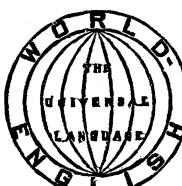
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Begin with Vol. I., and go over the whole series carefully, noticing every place where the alcoholic fermentation has in any way been mentioned.

2. Write carefully: (a) Title of the paper, (b) name of the journal (for journals, see Bolton's Catalogue of Scientific and Technical Periodicals, 1865-1882, and his Catalogue of Chemical Periodicals, the first is found in any library, and was published by the Smithsonian Institution; the latter is found in the annals of the New York Academy of Sciences, Vol. III., Nos. 6-7, pp. 161-216, 1885, with supplement, *ibidem*, Vol. IV., pp. 19-22, 1887), (c) volume, page, and year.

3. Examine text-books and handbooks in which the question of the alcoholic fermentation is mentioned.

4. Examine also papers and works which do not bear directly upon this matter; sometimes interesting remarks may be found.

J. CHRISTIAN BAY.

Missouri Bot. Garden, St. Louis, Mo., July 18, 1893

A Plea for Botany in the Small Colleges.

The many pleas made for a better presentation of botany in the larger institutions of the country, have induced me to add a word for botany in the smaller colleges.

The present status of the science in these institutions is indeed discouraging as it is presented in their catalogues. The traditional term of botany given by an instructor in physics or chemistry is the common allowance doled out to the students. The conditions are, however, changing gradually, and chairs of biology are being established in many of the smaller colleges, whose incumbents are occasionally botanists. As a teacher of botany in one of these colleges, the writer wishes to add a plea for the introduction of botany in its proper proportion into the college curriculum.

The character of the work of the college is somewhat different from that of the university in that its courses are necessarily briefer and less specialized. Their students more frequently



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pursue a course which leads to the so-called general education, and the question naturally arises, what place has botany in such a scheme of equipment for life?

To the average college graduate few if any of the sciences can be said to be directly useful, they profit him largely in the breadth of view which they give, and the pleasure they are able to furnish in their contemplation or pursuit. In these latter respects one can scarcely conceive of a science which would rank higher than botany. There are certainly no phenomena which are met with more frequently by the non-professional than those which appertain to plants and plant life. Without becoming sentimental one may say with truth that to one who has an intimate knowledge of this field of nature the world around us takes on a new aspect, and new truths can be discovered and added daily to the fund already acquired. But it is on account of the peculiar adaptability of botany to teaching, that the science should appeal to the smaller institutions.

That science is best adapted to teaching which is able to present its material at first hand for investigation, and whose truths are within the ability of the student to discover.

The material for botanical study is abundant everywhere, and presents problems in a measure peculiar to each region. The early stages of investigation in the science are not difficult and do not require expensive apparatus. The live teacher who sends his students to the field and not to books, will find in botany a science in which enthusiasm can be aroused and progress made without an expensive outfit.

In the planning of our college courses in botany one must needs bear in mind two classes of students, those who are to go on with the science and those who pursue it as one of the elements of a general education. It is the former class who too frequently suffer in the average college.

The courses should be given in such a manner as to give the student who wishes to pursue the science in a university a foundation which does not need repeating because it is antiquated or

abbreviated. In this way I believe the small colleges can be made centres of enthusiasm for botanical science, which will materially advance its teaching and its standing in this country.

It is to be hoped that botany will one day take its place in the curriculum of the small college as one of its most important constituents for the training of men.

X.

AMONG THE PUBLISHERS.

"CAMP-FIRES of a Naturalist" is the title of a forthcoming book which sketches big-game hunting in the west from a fresh point of view. The author describes the actual adventures and experiences of a naturalist, Professor Dyche, of Kansas University, who has hunted from Mexico to the northern confines of British Columbia, pursuing grizzly bears, mountain sheep, elk, moose and other rare game. As an outdoor book of camping and hunting this possesses a timely interest, but it also has the merit of scientific exactness in the descriptions of the habits, peculiarities and haunts of wild animals. The author is Mr. Clarence E. Edwards, and the book is to be published immediately by D. Appleton & Co., with many illustrations.

—Professor Charles S. Minot's "Human Embryology" is announced to be translated into German. The translation is being made by Dr. S. Kästner and will be published by Messrs. Veit of Leipzig. The author has revised the entire work for the German edition and has made a series of changes and additions, which will render the translation practically a new edition. Among the changes is the making of a new chapter in the Introduction, giving a complete account of the external development and growth of the human embryo through all stages. References have also been added to important papers published since the original American edition was issued. The honor of a German translation has hitherto been accorded very rarely to American scientific works.

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For sale or exchange.—A complete set of the report of the last Geological Survey of Wisconsin, T. C. Chamberlin, geologist. It consists of four large volumes, finely illustrated, and upwards of forty large maps and charts. Will sell for cash or exchange for a microscope. Address Geo. Beck, Platteville, Wis.

For sale or exchange for copper coins or rare postage stamps. Tryon's American Marine Conchology, containing hand colored figures of all the shells of the Atlantic coast of the United States. Presentation copy, autograph, etc. One vol., half morocco, \$vo, usual price, \$25, postpaid, \$15. Botany of the Fortieth Parallel of the Hundredth Meridian of the Pacific R. R. Survey. Other Botanical works and works on Ethnology. F. A. Hassler, M.D., Santa Ana, Cal.

I have a fire-proof safe, weight 1,150 pounds, which I will sell cheap or exchange for a gasoline engine or some other things that may happen to suit. The safe is nearly new, used a short time only. Make offers. A. Lagerstrom, Cannon Falls, Minn., Box 887.

For exchange.—Hudson River fossils in good condition from the vicinity of Moore's Hill, Ind., also land and fresh water shells. Desire fossils and shells from other groups and localities. Address Geo. C. Hubbard, Moore's Hill, Ind.

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Wants.

WANTED.—Assistant in Nautical Almanac office, Navy Department. The Civil Service Commission will hold an examination on August 15 to fill a vacancy in the position of assistant (computer) in the Nautical Almanac office. The subjects will be letter-writing, penmanship, trigonometry, rudiments of analytical geometry and calculus, logarithms, theory and practice of computations, and astronomy. Each applicant must provide himself with a five-place logarithmic table. The examination will be held in Washington, and if applications are filed in season, arrangements may be made for examinations in the large cities. Blanks will be furnished upon application to the Commission at Washington.

RAFTSMEN WANTED.—The Civil Service Commission will hold examinations on August 15 to fill two vacancies in the War Department; one in the position of architectural draftsman, salary \$1,400, the other in the position of assistant draftsman, Quartermaster General's office, salary \$1,200. The subjects of the architectural draftsman examination are letter-writing, designing specifications and mensuration, and knowledge of materials; of the assistant draftsman examination they are letter-writing, tracing, topographic drawing and projections. The examination will be held in Washington, and if applications are filed in season, arrangements may be made for examinations in the large cities. Blanks will be furnished upon application to the Commission at Washington.

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